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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,562	05/03/2005	Kenji Oshima	P27820	4028

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EXAMINER	
TRAN, LY T	

ART UNIT	PAPER NUMBER
2853	

NOTIFICATION DATE	DELIVERY MODE
08/08/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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TH

Office Action Summary	Application No.	Applicant(s)	
	10/533,562	OSHIMA ET AL.	
	Examiner	Art Unit	
	Ly T. TRAN	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 May 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) 23-51 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 9-18 and 20-22 is/are rejected.
- 7) ☒ Claim(s) 4-8 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>8/3/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of species I in the reply filed on 5/29/07 is acknowledged. The traversal is on the ground(s) that all claims are linked as to form a single inventive concept. This is not found persuasive because even all claims are linked to form a single concept, but still have different species.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 23-51 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 5/29/07

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-4, 9-18, 20-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Suzuki et al (USPN 6,783,227).

With respect to claim 1, Suzuki discloses an ink jet recording apparatus which includes an ink jet head (fig.1,2: element 4) whose recording-medium (99) opposing surface that opposes a recording surface of a recording medium is furnished with an ink ejecting portion formed with open ends of a plurality of nozzle holes for ejecting a UV curable ink, and a head moving mechanism (element 3) for putting the ink jet head into reciprocating motion in a predetermined direction parallel to the recording surface of the recording medium, and which performs recording by ejecting the ink from the nozzle holes of the ink jet head onto the recording surface of the recording medium (fig.1, 2) and then curing the ink ejected and attached onto the recording surface of the recording medium by irradiation with ultraviolet light (element 5), at least when the head moving mechanism puts the ink jet head into a forward motion of the reciprocating motion, wherein the ink jet head or a moving member which moves together with the ink jet head is provided with a plurality of ultraviolet light emitting diodes (Column 5: line 54-60) for emitting the ultraviolet light to the ink attached onto the recording surface of the recording medium to cure the ink.

With respect to claim 2, Suzuki discloses wherein the ultraviolet light emitting diodes, when seen from a direction perpendicular to the recording surface of the recording medium, are arranged to form one or a plurality of linear rows that extend in a direction perpendicular to the direction of the reciprocating motion of the ink jet head (fig.1,2: element 4, 5).

With respect to claim 3, Suzuki discloses wherein the ultraviolet light emitting diodes form the plurality of rows (fig.2).

With respect to claim 9, Suzuki discloses wherein the apparatus is configured so that the ultraviolet light emitted from the ultraviolet light emitting diodes is applied via a light guiding member to the ink attached to the recording medium (fig.7: element 9).

With respect to claim 10, Suzuki discloses wherein the apparatus is configured so that each time the ink jet head performs a forward motion and a backward motion of the reciprocating motion, the ink is ejected from the nozzle holes of the ink jet head onto the recording surface of the recording medium so as to perform recording, and the ultraviolet light emitting diodes (fig.1, 2: element 5) are disposed at both sides of the ink ejecting portion (element 4) with respect to the direction of the reciprocating motion of the ink jet head.

With respect to claim 11, Suzuki discloses wherein the apparatus is configured so that in each of the forward and backward motions of the ink jet head, at least the ultraviolet light emitting diodes rearward of the ink ejecting portion with respect to the moving direction of the ink jet head emit the ultraviolet light (fig.1, 2)

With respect to claim 12, Suzuki discloses wherein the apparatus is configured so that only when the ink jet head performs a forward motion of the reciprocating motion, the ink is ejected from the nozzle holes of the ink jet head onto the recording surface of the recording medium so as to perform recording, and the ultraviolet light emitting diodes are disposed rearward of the ink ejecting portion with respect to the direction of the forward motion of the ink jet head (fig.1, 2).

With respect to claim 14, Suzuki discloses wherein the nozzle holes are formed in a nozzle plate (Column 8: line 60-67) which forms the recording medium opposing surface of the ink jet head (fig.2), and the ultraviolet light emitting diodes (5) are disposed on a member other than the nozzle plate.

With respect to claim 15, Suzuki discloses wherein the apparatus is configured so that the ultraviolet light emitting diodes (fig.7: element 5) are placed in a case (element 9) and that the ultraviolet light is emitted through a surface of the case.

With respect to claim 16, Suzuki discloses wherein the case (element 9) is disposed so that the ultraviolet light emitting surface thereof is in the same plane as the recording medium opposing surface of the ink jet head.

With respect to claim 20, Suzuki discloses wherein the case (element 9) is disposed at least rearward of the ink ejecting portion with respect to the direction of the forward motion of the ink jet head, and a light blocking member (fig.7: element 11) for preventing part of the ultraviolet light emitted by the ultraviolet light emitting diodes from reaching the ink ejecting portion is provided between the case and the ink ejecting portion.

With respect to claim 21, Suzuki discloses wherein a heat conduction member for conducting, to the ink within the ink jet head, heat produced by the emission by the ultraviolet light emitting diodes is provided (element 5).

With respect to claim 22, Suzuki discloses a radiator for dissipating heat produced by the emission by the ultraviolet light emitting diodes (element 5) is provided.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 13, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al (USPN 6,786,589)

With respect to claim 13, since Suzuki discloses the nozzle holes are formed in a nozzle plate (fig.3, Column 12: line 43-54), which forms the recording medium opposing surface of the ink jet head, and the ultraviolet light emitting diodes are disposed on the carriage. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the Diode are disposed on the nozzle plate. Since applicant has not disclosed that having Diode on the nozzle plate solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with any place.

With respect to claims 17 and 18, Suzuki discloses the UV is disposed is the case (9). However, applicant does not clearly claim that how the case configured or located so that the ultraviolet light emitting surface thereof is located closer or farther to the recording medium than the recording medium opposing surface of the ink jet head is. Suzuki discloses the same structure therefore it would perfume the same.

Allowable Subject Matter

5. Claims 4-8, and 19, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 4 is allowable over prior art because least prior art have not been disclose wherein each ultraviolet light emitting diode in each ultraviolet-light-emitting-diode row is disposed in a position corresponding to the middle position between two adjacent ultraviolet light emitting diodes arranged in a neighboring one of the ultraviolet-light-emitting-diode rows, so that the ultraviolet light emitting diodes in the two adjoining ultraviolet-light-emitting-diode rows form a zigzag pattern.

Claim 5 is allowable over prior art because least prior art have not been disclose the open ends of the nozzle holes are arranged in the ink ejecting portion to form at least one or a plurality of linear rows that extend in a direction perpendicular to the direction of the reciprocating motion of the ink jet head, and the number of the ultraviolet light emitting diodes arranged in each ultraviolet-light-emitting-diode row is smaller than the number of the nozzle hole open ends existing in each nozzle-hole-open-end row.

Claim 5 is allowable over prior art because least prior art have not been disclose the open ends of the nozzle holes are arranged in the ink ejecting portion to form at least one or a plurality of linear rows that extend in a direction perpendicular to the direction of the reciprocating motion of the ink jet head, and the ultraviolet light emitting diodes existing on both ends of each ultraviolet-light-emitting-diode row are positioned

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outwardly of the nozzle hole open ends existing on both ends of each nozzle-hole-open-end row with respect to the direction of the nozzle-hole-open-end row.

Claim 7 is allowable over prior art because least prior art have not been disclose wherein the length, in the direction of the ultraviolet-light-emitting-diode rows, of a portion of the recording surface of the recording medium on which recording is performed in a single forward motion of the ink jet head is smaller than the length, in the direction of the ultraviolet-light-emitting-diode rows, of a portion of the recording surface of the recording medium which can be irradiated with ultraviolet light emitted from all of the ultraviolet light emitting diodes during the single forward motion.

Claim 8 is allowable over prior art because least prior art have not been disclose wherein a pattern mask is provided between the ultraviolet light emitting diodes and the recording medium so as to reduce difference in illumination of ultraviolet light on the recording surface of the recording medium between a portion of the recording surface which corresponds to the middle position between any two adjacent ultraviolet light emitting diodes in each ultraviolet-light-emitting-diode row and portions of the recording surface which correspond to the positions of those two ultraviolet light emitting diodes.

Claim 19 is allowable over prior art because least prior art have not been disclose wherein the case is disposed at least rearward of the ink ejecting portion with respect to the direction of the forward motion of the ink jet head, and the ultraviolet light emitting surface of the case is tilted with respect to the recording medium opposing

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surface of the ink jet head so that the side of the ultraviolet light emitting surface closer to the ink ejecting portion is located closer to the recording medium than the opposite side of the case is.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ly T. TRAN whose telephone number is 571-272-2155. The examiner can normally be reached on M-Th:6:30 AM-3:00PM or IFP, Friday: work from home.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LT

July 30, 2007



STEPHEN MEIER
SUPERVISORY PATENT EXAMINER